REMARKS

Claim 1 is presented for consideration.

Amendments have been made to Claim 1 to further distinguish Applicant's invention from the cited art.

Claim 1 stands rejected under 35 U.S.C. § 103 as allegedly being obvious over Fan '693 in view of Yu '088. This rejection is respectfully traversed.

Applicant's invention as set forth in Claim 1 relates to a geometric model conversion method of converting a three-dimensional CAD geometric analytical model of a thin-walled structure into a two-dimensional analytical model. The method includes a step of generating a plurality of tetrahedral elements, each of which has a shape of a triangular pyramid having an apex and a base and a single-layer structure in a plate thickness direction, by dividing an input three-dimensional CAD geometric analytical model which has a thin-walled structure such that the base is placed on one surface of a thin-walled structure and the apex is placed on another surface of the thin-walled structure opposing to the one surface, and generating intermediate nodes of sides that extend in a direction of plate thickness in each tetrahedral solid element having a shape of the triangular pyramid.

As amended, Claim 1 includes a step of connecting the intermediate nodes to generate triangular neutral plane shell elements as a two-dimensional analytical model. In addition, an injection molding analysis is executed with respect to each shell element of the two-dimensional analytical model generated in the connecting step and results of the injection molding analysis are outputted.

In accordance with Applicant's claimed invention, an efficient method is provided for generating a two-dimensional analytical model from a three-dimensional solid model of a thin-walled structure.

The primary citation to Fan relates to a method for generating a two-dimensional model. In the Background section of the patent, Fan discloses that it is known to use a tetrahedral solid element and a triangular shell element, *per se*. In this regard, Fan discloses a conventional solid element structural analysis and a shell element structural analysis (Col. 2, lines 41 through 42). Because of disadvantages associated with both of these conventional methods, however, Fan uses a structural analysis for defining a mid-plane surface of forming shell elements by applying mesh for a first surface and a second surface and applying a half thickness of a plate to the shell elements (see Col. 7, line 21 *et. seq.*).

In contrast to Applicant's claimed invention, however, Fan is not understood to teach or suggest, among other features, generating a plurality of tetrahedral solid elements, each of which has a shape of a triangular pyramid having an apex and a base and a single-layered structure in a plate-thickness direction, by dividing an input three-dimensional CAD geometric analytical model which has a thin-walled structure such that the base of the triangular pyramid is placed on one surface of the thin-walled structure and the apex of the triangular pyramid is placed on another surface of the thin-walled structure opposing to the one surface. The Office Action asserts that Fan teaches this claimed feature, but also acknowledges that Fan does not explicitly teach a single-layered structure in the plate-thickness direction.

The secondary citation to Yu relates to a modeling method with three-dimensional objects and is cited to compensate for the deficiency in Fan. In this regard, however, Figure 7b of Yu shows that mesh is generated on a surface in a plate-thickness direction of a solid element.

Yu fails, however, to show a plurality of tetrahedral solid elements, each of which has a shape of a triangular pyramid having an apex and a base and a single-layered structure in the plate-thickness direction. It is submitted, therefore, that it would not have been obvious to combine Fan and Yu in the manner proposed in the Office Action in order to generate a plurality of tetrahedral solid elements as set forth in Claim 1.

Furthermore, it is submitted that Fan fails to teach or suggest generating intermediate nodes of sides that extend in a direction of plate thickness in each tetrahedral solid element having the shape of the triangular pyramid, and connecting the intermediate nodes to generate triangular neutral plane shell elements as the two-dimensional analytical model.

Accordingly, reconsideration and withdrawal of Claim 1 under 35 U.S.C. § 103 is respectfully requested.

Favorable reconsideration and early passage to issue of the application are earnestly solicited.

It is believed that no fee is fee is required for this Amendment. However, the Commissioner is hereby authorized to charge any fee which may be deemed necessary in connection with this paper to Deposit Account No. 06-1205.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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